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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/344,629 06/25/99 RAI

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EXAMINER

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TM02/0716

AWAD, A	
ART UNIT	PAPER NUMBER

2675
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07/16/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/344,629

Applicant(s)
RAI et al.

Examiner
Amr Awad

Art Unit
2675



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on May 25, 2001
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14-29 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 20) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-12, 15-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (figures 1-2 and its related text; hereinafter referred to as APA) in view of Helms (US patent NO. 5,952,992).

As to claim 1, APA (figure 2) teaches a liquid crystal display that includes a liquid crystal display panel (100) having a predetermined display characteristic (APA referred to the predetermined display characteristic as predetermined brightness; see top of page 2), a luminescent unit located adjacent to the liquid crystal display panel, wherein the luminescent unit includes a light collector (115) which collects ambient light, and a light source (114); see specification, pages 1-2. APA teaches that the collected ambient light is used as a backlight of the liquid crystal display; see page 3, second paragraph.

APA does not teach a control circuit electrically connected to the liquid crystal display panel, wherein the control circuit varies the predetermined display characteristic in accordance with the amount of collected ambient light. APA does not expressly teach light receiving device

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substantially countering the ambient light directed to the collector to detect the amount of ambient light collected by the light collector.

However, Helms teaches a method and apparatus for automatically adjusting the brightness level of an LCD based on the ambient lighting conditions (abstract). Helms (figure 2) teaches a brightness control circuitry (204) wherein a microprocessor (204a) is electrically connected to backlight driver circuitry for generating brightness control signals ; see column 3, lines 19-34. Helms (figure 3) teaches that the ambient light signal is used to index the automatic brightness level signal look up table to change the brightness level (predetermined display characteristic); see column 4, lines 1-32.

Helms specifically discloses “lowering the brightness level of and LCD during use in low ambient lighting conditions”, (column 2, lines 38-39) which means that in case of high ambient lighting conditions, the brightness level of the LCD will increase. This disclosure by Helms substantially equivalent to the newly added limitation “light receiving device substantially countering the ambient light”. In other word, Helms countering the effect of the ambient light by automatically changing the brightness of the LCD based on the ambient conditions.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Helms’s teaching of having a control unit to change the brightness level (predetermined display characteristic) according to the ambient light to be incorporated to APA’s device so as motivated by Helms, to have an intelligent LCD brightness control system which automatically adjusts to the ambient lighting conditions of the environment

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in which the PC is being used; see column 2, lines 3-6. Furthermore, the brightness level adjustment automatically, without user intervention, thereby reducing the possibility of user error; see column 2, lines 42-46.

It would have been also obvious to a person of ordinary skill in the art at the time the invention was made to include the teaching of Helms of countering the ambient light to be incorporated to APA's device so as motivated by Helms, a user could take advantage by decreasing the brightness level of the LCD whenever ambient lighting conditions permit (dark room) and then subsequently increasing the brightness level only when necessary; see column 1, lines 49-55.

The two reference are combinable because, APA teaches the idea of collecting the ambient light which can be used as a backlight. Helms would be incorporated to APA to control the brightness of the LCD according to the detected ambient light. In an alternative way, Helms teaches having a control system that receives the ambient light and controls the brightness of the LCD according to the received ambient light. APA further enhance Helms by not only sensing the ambient light, but also collecting it to be used in the backlight.

As to claim 15, the claim is substantially similar to claim 1, except the citation of a light receiving device for generating a light amount signal corresponding to the amount of light illuminating the liquid crystal display. For that Helms, a photodetector for receiving the ambient light; see column 2, lines 19-35.

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As to claim 20, APA (figure 2) teaches a liquid crystal display that includes a liquid crystal display panel (100) having a predetermined display characteristic (APA referred to the predetermined display characteristic as predetermined brightness; see top of page 2), a luminescent unit located adjacent to the liquid crystal display panel, wherein the luminescent unit includes a light collector (115) which collects ambient light, and a light source (114), a cover (121) which selectively close the light collector; see specification, pages 1-2. APA teaches that the collected ambient light is used as a backlight of the liquid crystal display; see page 3, second paragraph.

APA does not teach a control circuit electrically connected to the liquid crystal display panel, wherein the control circuit varies the predetermined display characteristic in accordance with the amount of collected ambient light. APA does not expressly teach light receiving device substantially countering the ambient light directed to the collector to detect the amount of ambient light collected by the light collector.

However, Helms teaches a method and apparatus for automatically adjusting the brightness level of an LCD based on the ambient lighting conditions (abstract). Helms (figure 2) teaches a brightness control circuitry (204) wherein a microprocessor (204a) is electrically connected to backlight driver circuitry for generating brightness control signals ; see column 3, lines 19-34. Helms (figure 3) teaches that the ambient light signal is used to index the automatic brightness level signal look up table to change the brightness level (predetermined display characteristic); see column 4, lines 1-32.

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Helms specifically discloses “lowering the brightness level of and LCD during use in low ambient lighting conditions”, (column 2, lines 38-39) which means that in case of high ambient lighting conditions, the brightness level of the LCD will increase. This disclosure by Helms substantially equivalent to the newly added limitation “light receiving device substantially countering the ambient light”. In other word, Helms countering the effect of the ambient light by automatically changing the brightness of the LCD based on the ambient conditions.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Helms’s teaching of having a control unit to change the brightness level (predetermined display characteristic) according to the ambient light to be incorporated to APA’s device so as motivated by Helms, to have an intelligent LCD brightness control system which automatically adjusts to the ambient lighting conditions of the environment in which the PC is being used; see column 2, lines 3-6. Furthermore, the brightness level adjustment automatically, without user intervention, thereby reducing the possibility of user error; see column 2, lines 42-46.

It would have been also obvious to a person of ordinary skill in the art at the time the invention was made to include the teaching of Helms of countering the ambient light to be incorporated to APA’s device so as motivated by Helms, a user could take advantage by decreasing the brightness level of the LCD whenever ambient lighting conditions permit (dark room) and then subsequently increasing the brightness level only when necessary; see column 1, lines 49-55.

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APA and Helms do not specifically teach controlling the cover based on the cover driving apparatus. However, Helms teaches a control knob (16) for manually adjusting the brightness level; see column 3, lines 7-9. Helms also teaches that the brightness control circuitry adjust the brightness according to the ambient level. Therefore, the user is able to control the ambient light, and the intensity of the backlight. If this teaching would to be incorporated to APA's display device; controlling the cover would be controlled by the control device of Helms.

Therefore, it would have been obvious to a person of ordinary skill to automatically control the opening of the cover, so as motivated by Helms, to automatically control the brightness level.

As to claim 26, the claim is substantially similar to claim 20, and is analyzed as previously discussed with respect to claim 20. In addition to that Helms teaches photo detector (14) for receiving the ambient light, which in turn, connected to the backlight of the LCD panel (12) via brightness controller (204). Therefore, the controller has both the backlight intensity and the ambient intensity to generate the second light receiving means corresponding to the total amount of light; see column 3, lines 19-34.

As to claims 2, 6 and 18-19 APA and Helms do not specifically teach that the characteristic includes transmittance, the control circuit changing the minimum transmittance in accordance with the amount of the collected ambient light. However, Helms teaches controlling the brightness in accordance to the collected ambient light which is fairly suggest transmittance control.

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As to claims 3-5 and 7, as seen above, Helms teaches adjusting the brightness level in accordance to the ambient light. As it is well known in the art, driving the liquid crystal device required a voltage to be applied to the electrodes that form pixels. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to realize that the applied voltage would be changed in accordance to the ambient light, so as to be able to adjust the brightness level.

As to claim 8, Helms teaches a microprocessor (204a) is electrically connected to backlight driver circuitry to control the brightness control; see column 3, lines 19-34. Therefore, the microprocessor (204a) is obviously able to turn the backlight off if the ambient light is enough without using the backlight.

As to claims 9-12, APA and Helms does not specifically teaches controlling the cover based on the cover driving apparatus. However, Helms teaches a control knob (16) for manually adjusting the brightness level; see column 3, lines 7-9. Helms also teaches that the brightness control circuitry adjust the brightness according to the ambient level. Therefore, the user is able to control the ambient light, and the intensity of the backlight. If this teaching would to be incorporated to APA's display device; controlling the cover would be controlled by the control device of Helms.

Therefore, it would have been obvious to a person of ordinary skill to automatically control the opening of the cover, so as motivated by Helms, to automatically control the brightness level. Helms also teaches a microprocessor (204a) is electrically connected to backlight

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driver circuitry to control the brightness control; see column 3, lines 19-34. Therefore, the microprocessor (204a) is obviously able to turn the backlight off if the ambient light is enough without using the backlight.

As to claims 16 and 17, APA (figure 1) teaches first and second substrates (101 & 104), a liquid crystal layer (107) arranged between the first and the second substrates, a seal portion and a display area of the liquid crystal display panel; see the specification page 1. Helms teaches having the light receiver (photodetector 14') on the top of the liquid crystal display (i.e., on top of the substrate). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the light receiver on top of the substrate, as seen in Helms' device so that the ambient light can be easily received by the light receiver.

As to claim 21, Helms teaches a judgement means (step 306 in figure 3) to adjust the brightness control (step 308); see column 4, lines 11-26.

As to claims 22-23, 27-29, the claims are directed towards judgement circuits, one for the cover, one for brightness control, one for contrast ratio, and one for the backlight. These judgment circuits are addressed above, with respect to claims 2, 20-21, and would be obvious, using the discussion presented in these claims.

As to claims 24-25, Helms teaches an analog to digital convertor (204c), judgement circuit (step 306 in figure 3) to adjust the brightness control (step 308); see column 4, lines 11-26.

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3. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over APA and Helms as applied to claim 1 above, and further in view of Koenck et al. (US patent NO. 5,818,553; hereinafter referred to as Koenck).

Note the discussion of APA and Helms above. APA and Helms teach all the limitations of claim 14 except the citation that the light receiving device is located in the proximity of the light collector.

Koenck teaches a contrast control for Lcd wherein a light sensor (24) receives ambient light and light emitted from panel (32) and is located in the proximity of light collector (34); see figure 3, and column 2, lines 36-54..

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to adapt Koenck's design to be incorporated in APA's modified device, so as can be suggested from Koenck's figure 3, to have simple design structure that is easy to manufacture. Furthermore, to allow the light receiving part to receive both the ambient light and the backlight.

Response to Arguments

4. Applicant's arguments filed May 25, 2001 have been fully considered but they are not persuasive.

As to Applicant's argument with respect to the rejection under U.S.C 112, second paragraph, the rejection has been withdrawn.

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As to Applicant's argument with respect to the rejection under U.S.C 103(a), Applicant (page 8) argued that Neither APA nor Helms teach a light receiving device substantially countering the ambient light directed toward the light collector to detect the amount of ambient light collected by the light collector. Examiner respectfully disagrees. As discussed above, Helms specifically discloses "lowering the brightness level of and LCD during use in low ambient lighting conditions", (column 2, lines 38-39) which means that in case of high ambient lighting conditions, the brightness level of the LCD will increase. This disclosure by Helms substantially equivalent to the newly added limitation "light receiving device substantially countering the ambient light". In other word, Helms countering the effect of the ambient light by automatically changing the brightness of the LCD based on the ambient conditions.

The fact that Helms changes the brightness of the LCD based on the detected ambient light clearly suggests that the detector detects the amount of ambient light, and not only detecting the present or the absent of the ambient light. Therefore, as discussed above, by combining the teaching of APA and Helms, it is clear that the two reference are combinable because, APA teaches the idea of collecting the ambient light which can be used as a backlight. Helms would be incorporated to APA to control the brightness of the LCD according to the detected ambient light. In an alternative way, Helms teaches having a control system that receives the ambient light and controls the brightness of the LCD according to the received ambient light. APA further enhance Helms by not only sensing the ambient light, but also collecting it to be used in the backlight.

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As to the Applicant's argument (bottom of page 9) that Helms does not teach or disclose using the collected ambient light as a backlight of the liquid crystal display panel, as discussed above, APA teaches that the collected ambient light is used as a backlight of the liquid crystal display; see page 3, second paragraph. Thus Examiner respectfully submits that the combination of APA and Helms fairly teach Applicant's invention as claimed.

As to Applicant's argument (top of page 10) with respect to claim 20, the argument is substantially similar to the previous argument and the response to this argument is substantially similar to the response presented above with respect to claims 1 and 15.

As to Applicant's argument (bottom of page 10), that neither Helms or the APA disclose a mechanism for controlling the opening and the closing of the cover. Examiner respectfully disagrees. As can be seen in figure 2, APA shows a cover (121) which can be opened and closed. Being able to close and open the cover as shown in figure 2, fairly suggest that the closing and the opening is done in accordance to the desired brightness. It is not specifically presented in the claim that the mechanism of closing and opening the cover is performed automatically. Therefore, the mechanism shown in Figure 2 fairly reads on the limitations as claimed.

Similarly with respect to Applicant's argument for claim 26, the argument is substantially similar to the argument of claim 20 and the response to this argument is substantially similar to the response presented above with respect to claim 20.

Conclusion

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5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

6. **Any response to this final action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Or:

(703) 308-6606, (for informal or draft communications, please label


"PROPOSED" or "DRAFT")

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hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist)

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amr Awad whose telephone number is (703) 308-8485. The examiner can normally be reached on Monday--Friday from 7:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Saras, can be reached on (703) 305-4718.



ALMIS R. JANKUS
PRIMARY EXAMINER

Amr A. Awad

Patent Examiner

July 06, 2001.